

Proper Functioning Condition
And
Amendment 6 Assessments and Ratings
For
Monache Allotment
Summer 2010 and 2011

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Introduction

This document records the findings for the Amendment 6 rangeland assessment process as described under the 1982 Inyo National Forest Land and Resources Management Plan (Forest Plan). The Amendment 6 process is an assessment tool designed to describe the vegetative and watershed conditions within range allotments, and provides a process for determining grazing utilization levels based on improving or maintaining appropriate vegetation and watershed conditions on the allotments. This process uses the Key Area concept, where a “key area” is rated in lieu of rating every area on the allotment. Key Areas are representative areas that attract a higher degree of use from grazing animals, either due to location, species composition, access to water or other factors. Key areas are those meadows that will reach utilization standards before other areas on the allotment, thus triggering the time for moving animals off those management units. When Key Areas are rated at levels lower than “Fully Functional”, specific actions are triggered, as identified in the Amendment 6 document, which are aimed at improving the condition of the meadow or upland site.

Six categories are assessed for Wet and Moist Meadow key area types, and include:

- Surface Organic Thickness
- Soil Compaction
- Rills and Gullies
- Presence of Hummocks
- Bare Ground
- Headcuts and Nickpoints

Each category is assessed by an interdisciplinary team that examines the conditions on the ground related to each category. Using the individual ratings for each category, an overall rating is given to each Key Area site as one of either four ratings: Fully Functional, Functioning at Risk, Degraded or Non-Functional. In order for a riparian area to be rated as Fully Functional, four of the six assessment parameters must rate as a Level 4, with no checks in the lowest two categories (Level 1 and Level 2). A rating of Functioning at Risk is given if only one category is rated Degraded, two or more are in the Functioning at Risk or Fully Functional and no checks are recorded as Non-Functioning. This process is described in more detail within the Amendment 6 document of the Forest Plan.

The Proper Functioning Condition assessment is another process for describing the hydrologic and vegetative conditions, or functions, specifically as it relates to stream channels and associated floodplains. It does not set utilization standards, but helps inform grazing management decisions. Together these assessments give an overall view of the characteristic and conditions of the area under examination to develop an informed decision on appropriate grazing management strategies. This report will be used in conjunction with other resource evaluations, such as wildlife, rare plant, fisheries, archaeology, etc. to set a comprehensive grazing management strategy for the allotments.

Note: photos are used as representations of conditions, not as fixed monitoring points and will be useful to future assessment teams in order to recognize gross differences in conditions. Also, because of time constraints, PFC was not conducted on headwater spring channels or channels that do not exhibit response to high-flow events where a flood plain is developed.

Existing Vegetation Condition on the Kern Plateau

Vegetation data were rated as poor, fair, good, and excellent. For this analysis these terms are defined below and originate from the vegetation allowable use matrices in Appendix A of the Amendment 6 Forest-wide Range Utilization Standards (USFS 1995). The term **desired plants** refers to plant species which are representative of a specific vegetation type in a healthy state.

- Poor condition- the lowest ratio of desired plants to total herbaceous, or the bottom tier of the Amendment 6 matrices.
- Fair condition- the second-to-lowest ratio of desired plants to total herbaceous (fourth tier).
- Good condition- the third-to-lowest ratio of desired plants to total herbaceous (third tier).
- Excellent condition- the second highest and highest ratio of desired plants to total herbaceous (first and second tiers).

Range vegetation transects read in 2010 indicate that 29 of the 39 key areas assessed across three allotments were in excellent condition (see Table 1); these key areas had high ratios of desired-to-total herbaceous plant species. The 10 remaining key areas were in good condition but had a lower ratio of desired-to-total herbaceous plant species. No key areas rated below good condition (or below the third tier of the Amendment 6 matrices).

Table 1. Amendment 6 vegetation ratings.

Allotment	Number of Key Areas	
	Excellent	Good
Monache	14	1
Mulkey	8	0
Templeton	11	8
Whitney	13	1

Individual Meadow and Stream Assessments

Big Dry Meadow

Big Dry Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Moist and Dry	Excellent (2 nd tier for Moist Meadows)	At Risk	No channel

Meadow Description: Big Dry Meadow is located within the Nine Mile Creek watershed that flows to the main stem of the Kern River. It is a moist and dry meadow encompassing 105 acres and is comprised of classified ecological types Moist Meadow Drainageways (MU 19) and Alluvial Fans/Rothrock Sage (MU 7). The meadow is currently within the Monache Allotment grazing schedule and is usually grazed in wet years. The permittees noted that they do not usually use this meadow because of lack of water. For the 2011 season, this was one of the meadows that did dry sufficiently enough to accommodate cattle, compared to other meadows within the allotment, yet still had water that was readily available; utilization was measured at 25% overall.

Watershed Rating: Big Dry Meadow was rated for watershed condition as At Risk. All factors rated as Level 4 except for Headcuts and Nickpoints, which rated as Level 2. It appeared that the channel was not functional because of numerous isolated pools within the channel, which put it in the Level 2 category. However, on a subsequent trip in September for utilization monitoring, it was obvious that the “stream” was a dry, ephemeral channel that was active only during high run-off. The ephemeral ponds were dry. This parameter may need re-assessment.

- **Organic Layer:** The organic layer measured up to 2 inches near the ephemeral stream channels and averaged ½ to 1 inch throughout the rest of the meadow. Rodent turnover in the soil layer was evident. The photo to the right of the soil sample is an example of a soil profile from a dry meadow, noting the thin organic layer at the top of the sample.
- **Hummocks, Compaction, Rills/gullies:** No hummocks, compaction, or rills/gullies, were observed throughout the meadow.
- **Bare Ground:** Not much bare ground was observed except that attributed to rodent activity.
- **Headcuts:** Several were observed; some were enhanced by rodent activity. Large, crescent-shaped overland-flow type headcuts were present; however, they are more likely to be ephemeral ponds than headcuts, much like the ones observed in the meadow tributary to Death Canyon on the Templeton Allotment. Because there were no headcuts within perennial streams observed during a September 2011 field visit that threatened the meadow, this rating should be considered to be raised from the Degraded category initially recorded in the July 2011 assessment to At Risk or even Fully Functional.



Photo above: Soil sample showing very little organic development. Taken in the dry portion of Big Dry meadow.

Vegetation Rating: Big Dry is a moist and dry meadow that rated at excellent condition and fell in the second highest tier of Amendment 6 using the Moist Meadow Matrix. Bare ground

accounted for 15 hits and litter for 18 hits. Rodent-disturbed bare ground was visually common, and rodent activity appeared to account for about 2/3 of the bare ground hits recorded. A mix of mid-seral forbs and grasslikes were the common vegetation. (Assessed July 2011)

PFC Rating: No perennial channel occurred within Big Dry Meadow, so PFC was not assessed.



Photo above: Example of the different meadow types within Big Dry Meadow. The foreground is a wet meadow type dominated by *Carex* species. The mid-section is a mixed-moist meadow with a variety of perennial forbes and the back ground is a dry meadow dominated by Rothrock sage.



Photo above: Overview of Big Dry Meadow.



Photo above: The ephemeral channel within Big Dry Meadow, showing some of the degrading banks.



Photo above: Illustrating the very wet conditions in mid-July of 2011 in Big Dry Meadow. In the center is an example of the ephemeral ponds within the meadow.



Photo above: A different ephemeral pond in Big Dry Meadow taken at the end of the summer season in September.

Bog Hole Meadow

Bog Hole Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	Fully Functional	No perennial channel

Meadow Description: Bog Meadow as assessed at the top portion of the meadow. The meadow drops down to a lower meadow area, which was not assessed. The total meadow area encompasses about 14 acres. This area was not classified under the Ecological Unit Inventory. The area assessed has characteristics very similar to a fen, and was probably why this was designated as a Key Area. The area assessed is quite steep, almost 10% gradient, and the small spring channels exhibit several small waterfalls. Most of the meadow is comprised of vegetation that is not very desirable to cattle, and is usually too wet for cattle to occupy.

Watershed Rating: This portion of the meadow rated as Fully Functional, with all parameters rating as a Level 4, except for Headcuts, which rated as a Level 3.

- **Organic Layer:** The organic layer measured ten or more inches throughout the assessment area.
- **Hummocks, Compaction, Rills/gullies:** No hummocks, compaction, or rills/gullies, were observed throughout the meadow.
- **Bare Ground:** There was a small area of bare peat, less than 5% overall.
- **Headcuts:** Two to three small spring channels flow down this meadow slope, although with the vegetation, it was difficult to tell how many there were. Channels appear stable, although because of the steepness of the meadow, the channels do have vertical adjustments which resemble small waterfalls.

Vegetation Rating: **Bog Hole** is a sloping wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. This key area is fairly small. *Carex nebrascensis* and *C. vesicaria* were the dominant species present. (Assessed July 2011)

PFC Rating: Not assessed.

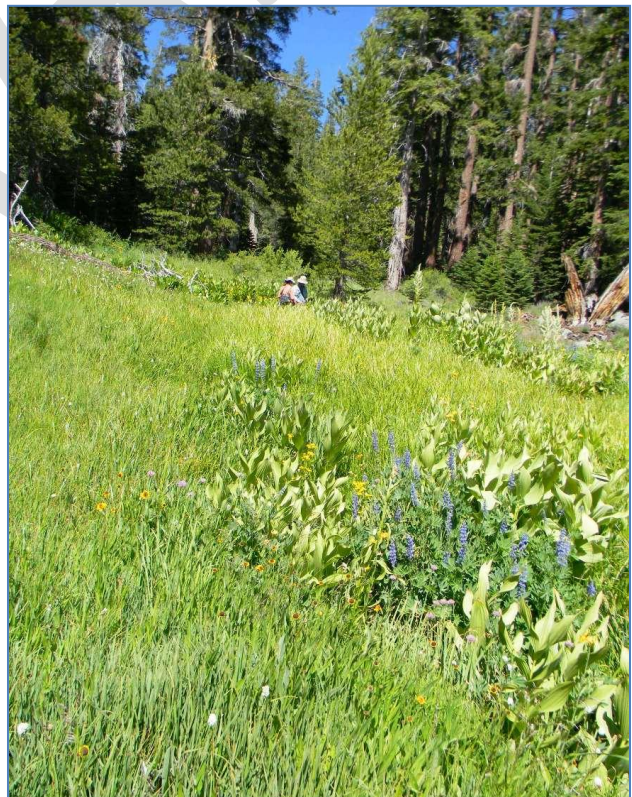


Photo above: Overview of the fen-type area of Bog Hole Meadow and showing the steepness of the meadow.

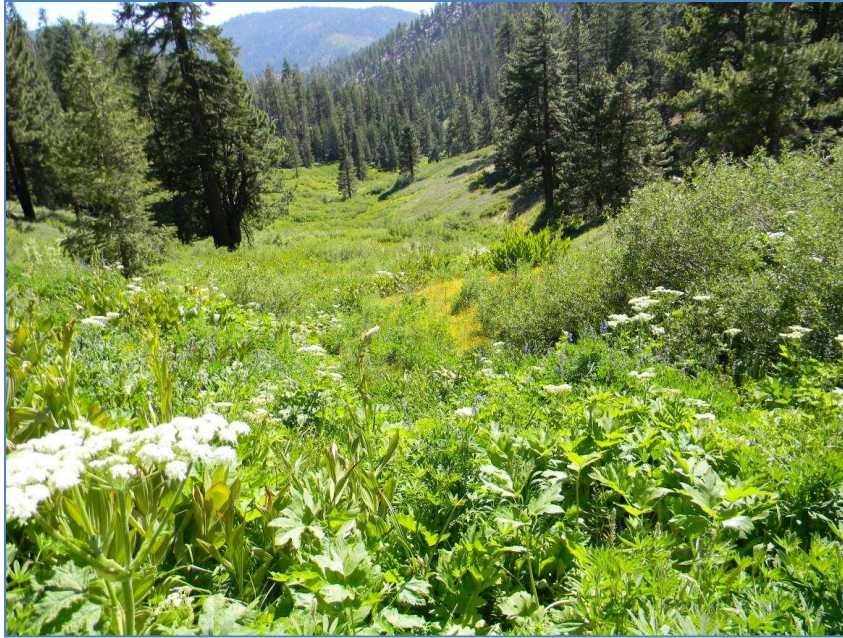


Photo above: Looking downhill at Boghole Meadow from near the trail.

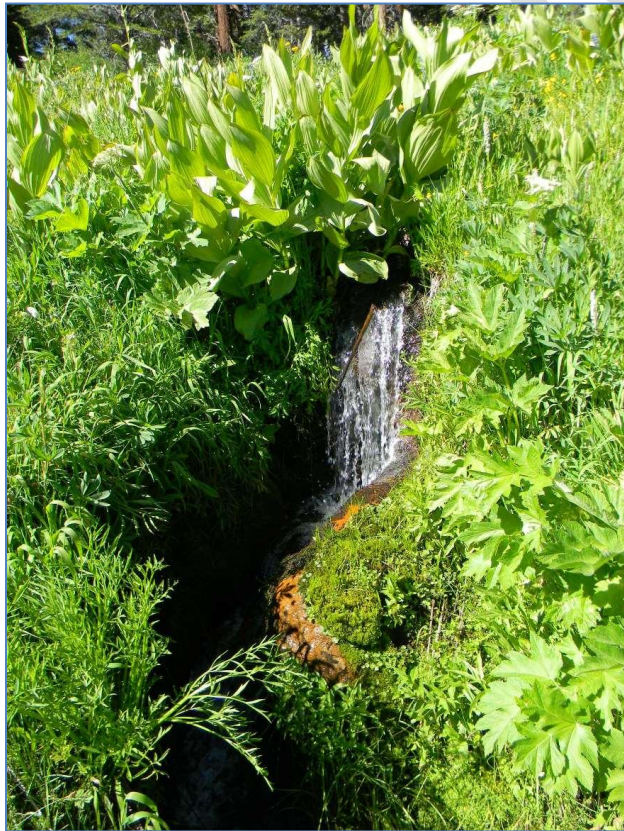


Photo above: One of the small waterfalls within the channel. This one was about 3 feet in height.

Bull Meadow

Bull Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	Fully Functional	No channel

Meadow Description: Bull Meadow was not included within the Kern Ecological Unit Inventory. It is located downslope of McConnell Meadow and is within the Snake Creek watershed, encompassing about 26 acres. It has characteristics similar to Hanging Meadows (MU3) and Sloped Stringer Meadows (MU4).

Watershed Rating: All parameters rated at Level 4 except for Headcuts and Nickpoints, which rated as Level 3.

- **Organic Layer:** Organic layer thickness ranged from 2-4 inches throughout the wet portion of the meadow. Within the dry sites, the organic layer ranged from ½ to 1 inch.
- **Hummocks:** An area of less than 1% of the meadow exhibited hummocks.
- **Rills/gullies, Compaction, Bare Ground:** No rills/gullies, compaction or bare ground were observed.
- **Headcuts:** Several old headcuts were observed at the bottom of the meadow; except for one, they did not show evidence of recent migration. All headcuts were well-vegetated with thick and vigorous vegetation above and below the headcut feature. The channel in the upper meadow area was well vegetated with no headcuts noticed.

Vegetation Rating: Bull is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. *Carex nebrascensis*, *C. vesicaria*, *Juncus balticus*, and *Lupinus polyphyllus* visually dominated the key area. *Deschampsia cespitosa* and *Poa* spp. were also visually common. (Assessed July 2011)

PFC Rating: No perennial channel occurred within Bull Meadow, so PFC was not assessed.



Photo above: Upper end of Bull Meadow.



Photo above: Lower end of Bull Meadow looking towards the upper end.



Photo above: Small stream channel through the lower end of Bull Meadow. Small trees were put in the channel to encourage sediment trapping, which appeared to slow down the headcut migration.



Photo above: Channel instability was observed in the stringer below the main body of Bull Meadow, but could threaten the stabilizing structures that are within the main meadow.



Photo above: Heavily vegetated spring channel at the upper end of Bull Meadow.

See the Little Dry Meadow map for location of Bull Meadow.

Casa Vieja Meadows

The Casa Vieja Meadow assessment includes two key areas (Casa Vieja East and Casa Vieja North). This area has had extensive restoration work completed on it since the 1930s when extensive, deep gullies crisscrossed the meadow. Restoration work included the construction of large sill structures, constructed from large trees felled from the adjacent forest. Some structures were at least 4 to 6 feet in height and are still visible within the stream channel. The sills act as a sediment catch, trapping erosive soils behind the structure to the point where vegetation can re-establish and delineate a channel. Because of the copious amounts of natural sediment in this area, the accumulation of sediments occurred relatively quickly and created a situation where the sediment is loosely consolidated within the depths of the meadow. When the process of sediment deposition occurs over hundreds of years, roots of the vegetation is more extensively incorporated into the stratification of the meadow substrate. Also, because of the sill structures placed within the channel, sinuosity of the channel was restricted by the mere process of trying to maintain the channel in the “spouts” of the sills. All these factors make for a very precarious situation that sets the meadow up for almost instant failure if the structures are not maintained. One major headcut has been migrating from inside the enclosure upstream to the cattle-permitted area, putting the entire upper meadow at risk of severe downcutting. The permittee has erected an electric fence around the stream channel to protect the banks from trampling effects in anticipation of the headcut migrating up the channel. Vegetation is abundant along the banks within the electric enclosure.

Casa Vieja Meadows: Casa Vieja East

Casa Vieja Meadow – East			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (2 nd tier)	At Risk	Functional—At Risk, Downward Trend

Meadow Description: Casa Vieja Meadow sits within the Nine Mile watershed as headwaters to the main stem of the Kern River. The entire complex encompasses an area of about 150 acres consisting of ecological classification types Moist Meadow Drainageways (MU19), Wet Meadow Drainageways (MU2), Hanging Meadows (MU3) and Riparian Stringers (MU4) in the upper elevations. The ecological types that are within the cattle grazed area include MU19 and MU3; the Amendment 6 assessment occurred in MU3.

Watershed Rating: All parameters rated as Level 4 except for Headcuts, which rated as Level 2.

- **Organic Layer:** Surface organic layer thickness ranged between 2 to 3 inches throughout the meadow.
- **Hummocks, Rills/gullies:** No hummocks, compaction, or rills/gullies were observed.
- **Compaction:** No compaction was observed throughout the meadow except for one area within the northeast corner of the horse-pasture fence. Here, some stratification of sod and sand layers (where the sod layer was disconnected from the sandy layer) was observed. This area is a spot where cattle concentrate trailing because of features on the ground.
- **Bare Ground:** There was less than 2% of bare ground; existing bare ground was primarily because of rodent activity.

- **Headcuts:** The active headcuts located at the lower end of this meadow bring the meadow to its overall rating of At Risk. This headcut has been migrating from the inside the enclosure since about 2004, and has now migrated out of the enclosure. Headcut treatment is planned for 2012 to arrest the migration of this headcut.

Vegetation Rating: Casa Vieja East is the key area east of the horse pasture in Casa Vieja Meadows (this includes the east arm of Ninemile Creek) and is a wet meadow that rated at excellent condition and fell in the second highest tier of Amendment 6. This key area had large, vigorous patches of *Phleum alpinum* and several large patches of *Carex vesicaria* with *C. nebrascensis*. (Assessed July 2011)



Photo above: Tall grasses in Casa Vieja meadow during the wet year of 2011.

PFC Rating: The presence of the headcut at the bottom of the meadow puts this entire riparian system at risk of losing meadow connectivity to the stream. As mentioned above, sinuosity is reduced within the channel, but this is more a function of the restoration process. The channel is perched up above the floodplain, putting it at risk of flowing out of the channel at high flow and finding the lower elevation. This would result in cutting through, or channelizing, the meadow.



Photo above: Incised channel as a result of the recent migration of the headcut from inside the enclosure (horse pasture) to the cattle use area in the eastern portion of Casa Vieja Meadow.



Photo above: The upper extent of the main headcut that is migrating through the cattle pasture in the eastern portion of Casa Vieja Meadow.



Photo above: Condition of the channel above the headcut in the eastern portion of Casa Vieja Meadow illustrates the well vegetated streambanks.



Photo above: Some instability within the channel was noted within Casa Vieja Meadow.



Photo above: One of the old headcut structures within Casa Vieja Meadow is visible in this photo. Note the wide, flat area above the structure that supports a robust *Carex* sp. community.

Casa Vieja Meadows: Casa Vieja North

Casa Vieja Meadow - North			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	Fully Functional	No channel

Meadow Description: Casa Vieja Meadows sit within the Nine Mile watershed as headwaters to the main stem of the Kern River. The entire complex encompasses an area of about 150 acres consisting of ecological classification types Moist Meadow Drainageways (MU19), Wet Meadow Drainageways (MU2), Hanging Meadows (MU3) and Riparian Stringers (MU4) in the upper elevations. The ecological types that are within the cattle grazed area include MU19 and MU3, with the north arm classified as MU3.

Watershed Rating: This section of Casa Vieja Meadow rated as Fully Functional, with all parameters rating at Level 4 except for Headcuts and Nickpoints, which rated at Level 3. The assessment was taken just after the Forest Service Watershed Crew had finished work on several headcuts. These headcuts were observed during the fall and had indications of vegetation establishing within the recent work.

- **Organic Layer:** Two to 3 inches of sod were measured throughout the meadow, and in some areas the sod exceeded 6 inches.
- **Hummocks:** There were a few small, localized areas of hummocks, with less than 5% observed throughout the meadow. No vegetation change was noted on the hummocks.
- **Rills/gullies, Compaction:** None were observed throughout the meadow.
- **Bare Ground:** Some small areas (20 x 20 feet) in the meadow appear to be re-vegetating with late- to mid- seral plant species, and is limited to less than 2% of the meadow.
- **Headcuts:** Treated headcuts in meadow are stabilizing, however there are still a few small headcuts that appear active, but there is no type-conversion associated with the upward migration (headcuts are small enough to still allow connection to the water-table.)



Photo above: Deep rooted organic layer.

Vegetation Rating: Casa Vieja North is the key area along the north side of the horse pasture in Casa Vieja Meadows (this includes North Stringer). It is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. The transect for this key area runs through a drier patch of meadow (moist meadow) but had predominantly wet meadow characteristics. *Carex nebrascensis* and *C. vesicaria* were the dominant species recorded. (Assessed July 2011)

PFC Rating: No perennial channel occurred within this section of the meadow, so PFC was not assessed.



Photo above: Overview of the north arm of Casa Vieja Meadow demonstrating extensive stand of *Carex* communities.



Photo above: Treated headcut within the north arm of Casa Vieja Meadow.



Photo above: In the foreground is bare ground that was observed in this section of Casa Vieja Meadow. It appears to be filling in with newly established *Carex* sp. vegetation.

Kingfisher Stringer Meadow

Kingfisher Stringer Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	At Risk	FAR upward trend

Meadow Description: This meadow encompasses approximately 26 acres and falls within the Sloped Mixed Meadow (MU6) classification type, which includes several types of inter-mingled ecological types. It is a narrow meadow with no well-defined vegetation/soil type. The vegetation transect focused within the wetter portion of the meadow.

Watershed Rating: This meadow is rated as At Risk because of the presence of active Headcuts, which rated at Level 2. All other parameters rated at Level 4.

- **Organic Layer:** There was an average of 2 inches of organic sod throughout the meadow.
- **Hummocks, Rills/gullies, Compaction:** None observed.
- **Bare ground:** Less than 2% bare ground was observed throughout the meadow, and was primarily due to rodent activity.
- **Headcuts:** Large headcuts through the lower end of the meadow were observed with raw banks and low-seral vegetation species along the banks. The banks were well scoured from the 2011 run-off event.

Vegetation Rating: **Kingfisher Stringer** is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. The most common species recorded were grasslikes and *Mimulus primuloides*. *Poa pratensis* and several *Carex* species were visually dominant. Rodent activity was apparent in portions of the meadow. *Artemisia rothrockii* was also present. (Assessed July 2011)

PFC Rating: This reach of the channel rated as Functional at Risk with an Upward trend. There were several small headcuts throughout the system that were active and still exhibited low-seral species along the banks. There were, however, several treated headcuts within the channel that were not actively migrating, were revegetating and appeared to be stabilizing, indicating an upward trend for this parameter.



Photo above: Overview of Kingfisher Meadow within the wet meadow type.



Photo above: The upper portion of Kingfisher Meadow where the channel was vertically stable.



Photos above and below: Two different headcuts which are migrating and unstable within Kingfisher Meadow.



Little Dry Meadow

Little Dry Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Moist Meadow	Excellent (1 st tier)	Fully Functional	PFC

Meadow Description: Little Dry Meadow is located within the Snake Creek watershed that flows to the South Fork of the Kern River. It is a moist meadow encompassing 26 acres solely comprised of classified ecological type Moist Meadow Drainageways (MU 19). The meadow is currently within the Monache Allotment grazing schedule but does not get much use because of inaccessibility.

Watershed Rating: Little Dry Meadow was exceptionally wet in July when it was assessed. It rated as Fully Functional with all parameters at Level 4 except for Headcuts, which rated as Level 3.

- **Organic Layer:** Soil organic thickness was measured at 2 to 3 inches within the wetter portions of the meadow, with 1/2 to 1 inch thickness within the dry portions of the meadow. There was a continuous layer of vegetation throughout the meadow.
- **Hummocks, Compaction, Rills/gullies, Bare Ground:** No hummocks, compaction, rills, or gullies were observed within the meadow. There was only a small localized area of bare ground in the “water holes”, and rodent activity appeared to be less than 5% throughout the meadow.
- **Headcuts:** Some headcuts were observed at the lower end of the channel, but appear stable and to be in an upward trend from the previous condition, as noted by new vegetation that has filled in around the banks. The upper ¾ of the meadow had no headcuts.

Vegetation Rating: Little Dry is a moist meadow that rated at excellent condition and fell in the highest tier of Amendment 6. *Carex simulata*, *Trifolium longipes*, and *Deschampsia cespitosa* were visually abundant. This key area is on the edge of the 2002 McNally Fire. (Assessed July 2011)

PFC Rating: The channel rated at Proper Functioning Condition, with notes concerning the headcuts that indicated that these headcuts had stabilized after restoration treatments had occurred. Streambanks were well vegetated with stabilizing vegetation representing multiple age classes and species composition.



Photo above: Overview of Little Dry Meadow looking down from the upper end of the meadow.

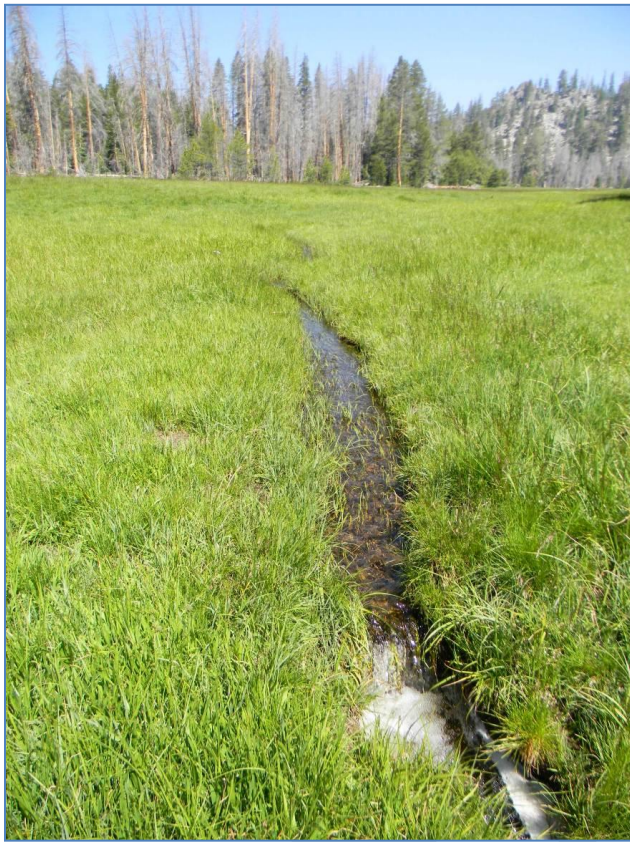


Photo above: A small headcut within the stream channel in Little Dry Meadow.



Photo above: The small channel at the lower end of Little Dry Meadow with well-vegetated banks.

Long Canyon Meadow

Long Canyon Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Dry Meadow	Excellent (1 st tier)	Fully Functional	FAR upward trend

Meadow Description: Long Canyon is a narrow, riparian influenced meadow of approximately 119 acres in size. It is classified as ecological types Hanging Meadows (MU3) and Riparian Stringers (MU4). The Amendment 6 assessment was taken in the riparian stringer type, where the meadow was located on a dry bench above the incised channel.

Watershed Rating: Long Canyon is a dry meadow with several intermittent spring areas. At the time of the assessment it was rated using the parameters for a wet or moist meadow. All parameters rated as Level 4, except for Organic Layer and Bare Ground, which rated as Level 3.

- **Organic Layer:** Organic layer thickness ranged from ½ to 1 inch average, otherwise the soil was a dry, silty, fine sand dominated with gravel soil throughout the meadow. This parameter was rated as Level 3 for a wet to moist meadow.
- **Hummocks, Rills/gullies, Compaction:** No hummocks, gullies or compaction were observed.
- **Bare Ground:** Bare ground was observed and comprised less than 20% of the meadow. Bare areas were located mostly in the

dryland/upland sites within the meadow. Very limited rodent activity was observed. It was evident that there had been areas of bare ground within the meadow that was re-vegetating as young *Carex* plants were filling in bare ground, indicating that this meadow is in an upward trend.

- **Headcuts:** No headcuts were observed within the meadow.



Soil sample from Long Canyon.

Vegetation Rating: Long Canyon is a narrow dry meadow that is located upstream from the flatter, more open meadow that is a private in-holding. This key area rated at excellent condition and fell in the highest tier of Amendment 6 in the Sagebrush/bunchgrass matrix. Vegetation recorded were a mix of grasses and forbs. Willows were also visually abundant. (Assessed July 2011)

PFC Rating: The stream channel rated as Functional—At Risk with an upward trend. The stream channel was primarily in good functional condition; however, the ID team did not find that there was adequate riparian wetland vegetation along the stream banks. There was a variety of riparian species present along the streambanks, but there were also areas of low-seral or pioneer plants species along the banks which did exhibit some erosion during the 2011 high flow event. There was evidence that riparian vegetation was expanding within the floodplain and streambanks.



Photo above: Overview of the dry meadow terrace in Long Canyon Meadow.



Photo above: The stream channel towards the lower end of the meadow through Long Canyon.



Photo above: This photo demonstrates the sinuosity within the channel of Long Canyon Creek.

McConnell Meadow

McConnell Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Good (3 rd)	Fully Functional	No channel

Meadow Description: McConnell Meadow is located within the Snake Creek watershed and totals about 5 acres. It was not analyzed under the Kern Ecological Unit Inventory, so there is no established classification for this meadow. However, it does resemble characteristics of MU4, Sloped Stringer Meadows. There were several robust springs within the meadow that supported small spring channels. There was no perennial stream channel within the meadow.

Watershed Rating: All parameters rated at Level 4 except for Headcuts and Nickpoints, which rated Level 3.

- **Organic Layer:** Organic layer thickness ranged from 2-3 inches throughout the meadow, and it was noted that the mineral layers contained a high level of organic material.
- **Hummocks, Rills/Gullies, Compaction, Bare Ground:** No hummocks, rills/gullies, compaction, or bare ground was observed.
- **Headcuts:** There were several small, but vegetated, nickpoints within the small spring channel. There was one larger headcut (about 1.5 ft high) that was well vegetated and did not migrate during the high run-off from the 2011 high flow event.

Vegetation Rating: McConnell is a wet meadow that rated at good condition and fell in the third tier of Amendment 6 because of a lack of desirable vegetation hits. McConnell was visually dominated by early- and mid-seral species such as *Hordeum*, *Poa pratensis*, and *Lupinus polyphyllus*. There were also several patches of *Carex nebrascensis* and *C. vesicaria*. Willows and aspens bordered the meadow. (Assessed July 2011)

PFC Rating: There were multiple small spring channels within the meadow, so PFC was not assessed because there was no distinct main perennial channel.

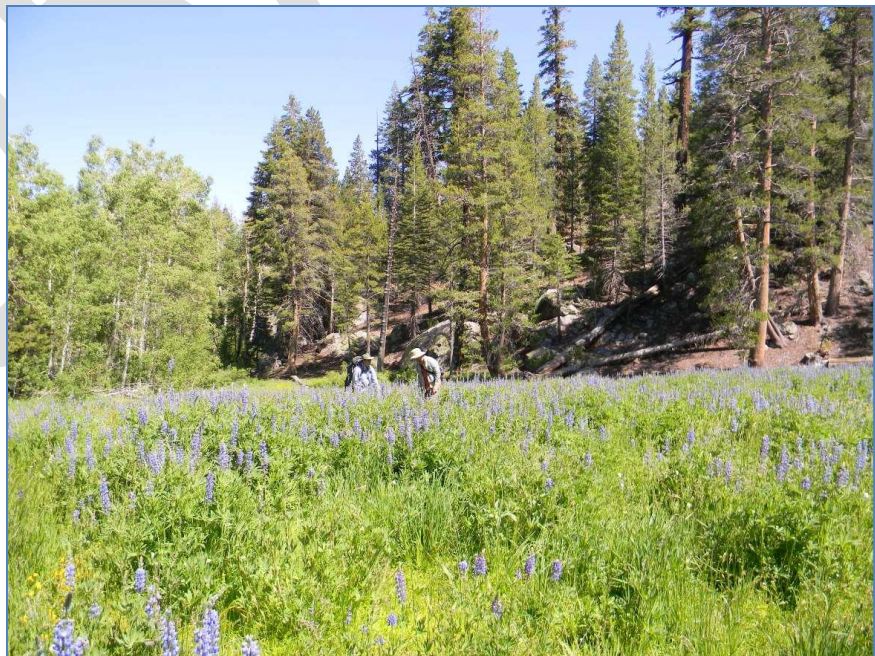


Photo above: The lower end of McConnell Meadow was dominated by *Lupinus* sp.



Photo above: An aspen-lined meadow with a variety of forbs and grass-like vegetation is characteristic of McConnell Meadow.

See Little Dry Meadow map for the location of McConnell meadow.

Monache Meadows Complex Key Areas

The South Fork Kern River runs the length of Monache Meadow Proper. The Monache Meadows Complex includes multiple stringers and smaller meadow areas within the entire complex. The stringers generally flow into the South Fork Kern River. The following meadows and stringers are all key areas within the Complex and are described in alphabetical order.

Monache Meadows: East of Bakeoven Meadow

Monache Meadow east of the Bakeoven sand-apron			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (2 nd tier)	Fully Functional	Small spring channel— not rated

Meadow Description: The meadow east of the Bakeoven “colluvial apron” is identified as Wet Meadow Basin (MU1), Wet Meadow Drainageways (MU2), and Moderate Alkaline Terraces/Haplocryolls (MU15). The Amendment 6 assessment was taken through the MU2 and MU15 types. Moderately productive springs occur at the head of this meadow, attesting to the consistent wetness of the area. The small spring channel terminates at the basin at the lower end of the meadow.

Watershed Rating: Because of the two soil types within the assessment area, it was difficult to lump the ratings together due to the vastly different characteristics of the soil types. Alkali soils, like that found within this meadow, do not support well-developed organic layers, nor the robust vegetation that is exhibited within wet and moist meadow types. It is also more prone to compaction due to the finer soil particle size. The rating for this meadow, taking into consideration characteristic for alkali-type soils, is Fully Functional.

- **Organic Layer:** The organic layer thickness ranged from 1 to 10 inches, and in the lower portion of the meadow averaged about 2 inches throughout.
- **Hummocks:** Some hummocking was observed at the spring areas, with hummocks standing 8 inches tall at the maximum with no vegetation change noted on the tops.
- **Rills/gullies and Bare Ground, Compaction:** No rills/gullies or compaction was observed, and bare ground was only noted in the alkali areas.
- **Headcuts:** Headcuts were rated as Level 3 from the small and unstable nick points and migrating headcuts that were noted at the upper end of the meadow within the spring mound. This would be an area that would be recommended for some type of restoration activity in order to halt the upward migration of the headcuts within the spring channel at the bottom of the spring mounds. The spring channel below the spring mounds was covered by a thick growth of vegetation with no nick points observed.

Vegetation Rating: The meadow area just east of Bake Oven is a wet meadow that rated at excellent condition and fell in the second highest tier of Amendment 6. Rodent activity was present. *Carex* species dominated the area. About 25% of total hits recorded along the transect were litter. (Assessed Sept. 2010)

PFC Rating: No PFC assessment was taken within the small spring channel.



Photo above: From the top of Bakeoven Meadow looking down towards the terminal basin. Hummocks within the spring area are obvious in the foreground.



Photo above: Example of the alkali soil type with sparse vegetation within the Bakeoven Meadow area.



Photo above: Photo of small headcut moving up through the “spring mound” in Bakeoven Meadow.

Monache Meadows: East of Crocker Field

Monache Meadow, East of Crocker Field			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Moist Meadow	Excellent (2 nd tier)	At Risk	No channel

Meadow Description: Crocker Field is located in the central portion of Monache Meadow, south of Soda Creek and Bakeoven Meadow. The area of the Amendment 6 assessment was taken just west and north of the waterfowl impoundment, in a moist meadow section of the meadow complex. The meadow classification assigned to this location is MU10, Recent Terrace/Oxyaquic Cryofluvents. This is a portion of the meadow that was impacted by the 1984 flood event that caused a large incision through Monache Meadow, creating a type-conversion in the vegetation from wet-dependent species to dry, perched terraces.

Watershed Rating: This meadow rated as At Risk, with questions if the Watershed rating should have been assessed for a dry site as opposed to a wet or moist site, based on the current site potential. The vegetation transect was taken through the moist portion of the unit, but the overall area was assessed for a wet or moist meadow type. As the current assessment stands, Organic Layer, Compaction and Bare Ground were rated at Level 3, the remaining were rated at Level 4.

- **Organic Layer:** One-half to 2 inches of sod was observed across the assessment area.
- **Hummocks:** A few hummocks were noticed, but it was not a characteristic of this meadow, and these appeared to be ant hills or gopher mounds. They were widely spaced, unconnected, and not perpetuated by freeze-thaw action.
- **Rills/gullies, Headcuts:** None were observed within this area.
- **Compaction:** There was slight to moderate compaction ½ to 1 inch thick in scattered areas. Loamy sand with re-dux properties gave the soil an orange-iron color. Approximately 20% of the peds observed displayed compaction.
- **Bare Ground:** There were bare spots with sparse vegetation scattered throughout the meadow; some were gravelly with none to minimal soil development.

Vegetation Rating: A portion of Monache Meadow (across from Crocker Field) is a moist meadow that rated at excellent condition and fell in the second highest tier of Amendment 6. *Carex* species and *Muhlenbergia richardsonis* dominated the site. (Assessed Sept. 2010)

PFC Rating: See below for PFC rating for the “Second Exclosure Down”, as this reach of the South Fork of the Kern River traverses through this meadow.



Photo above: Overview of the meadow East of Crocker Field.



Photo above: Bare zones within the assessment area may be due to the dry year conditions in the area East of Crocker Field.

Monache Meadows: Hessian Meadow

Hessian Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (2 nd tier)	Fully Functional	No channel

Meadow Description: Hessian Meadow is long, narrow meadow totaling 33 acres. It is classified as ecological unit types sloped mixed meadow (MU6) and riparian stringers (MU4). This meadow-type resembles Kingfisher Meadow (on the Monache Allotment) in the sense that it does not have a strong identification component within the meadow, but rather appears to be a mix of soil types and vegetation types. The Amendment-6 assessment was taken within the mixed-meadow type. This meadow has been grazed to about 15% utilization within the last 6 years.

Watershed Rating: This meadow rated as Fully Functional, with only the headcut rating at Level 3.

- **Organic layer:** Organic layer thickness ranged from 3 to 9 inches in the spring areas, and averaged 2 inches in the drier portions of the meadow.
- **Hummocks:** Some isolated “humps” were noted within the meadow but did not occur in groups.
- **Rills/gullies, Compaction, Bare Ground:** No rills, compaction or bare ground were noted.
- **Headcuts:** There is one ephemeral channel that bisects the meadow, and it was dry when the assessment was taken. Some headcut-type features were noted at the bottom of the meadow within this dry channel. During the right circumstances, they could become active and continue the up-channel migration.

Vegetation Rating:

Hessian is a wet meadow that rated at excellent condition and fell in the second highest tier of Amendment 6. The transect was located just east of a potential fen. *Carex* species and mid-seral *Eleocharis* dominated the site. (Assessed Sept. 2010)

PFC Rating: No perennial channel exists within the meadow, so no PFC assessment was completed.



Photo above: Overview of the lower portion of Hessian Meadow.



Photo above: The dry channel within Hessian Meadow.



Photo above: One of the headcuts within the ephemeral channel, about 8 inches high, within Hessian Meadow.

Monache Meadows: Round Mountain Stringer Meadow

Round Mountain Stringer Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	At Risk	No channel

Meadow Description: Round Mountain Stringer Meadow is comprised primarily of two classification types – Wet Meadow Drainageways (MU2) and Alluvial Fans/Rothrock Sage (MU6), with a “satellite” meadow classified as sloped mixed meadow. The assessment was taken primarily in the MU2 zone. This meadow is grazed annually at a utilization level of 23 – 26%, lower than the current allowable of 35%. The meadow is usually grazed in patchy, heavily used spots intermingled with a lot of *Carex* that is not used.

Watershed Rating: This meadow rated as At Risk because of three factors that were rated at Level 3. These three factors are Organic layer thickness, Hummocks and Compaction.

- **Organic Layer:** The sod layer was observed to be ½ to 4 inches thick, but on average was 1½ to 2 inches thick. In order for a Level 4 rating, sod is required to be at least 2 inches thick throughout the meadow.
- **Hummocks:** Hummocks were observed scattered in localized areas, although no change was noted in the vegetation at the tops of the hummocks. It was not obvious whether the hummocks were static or not, so a Level 3 rating was assigned.
- **Compaction:** A compacted layer below the sod was observed that averaged 2 inches thick, and some areas exhibited a 4-inch compacted layer. The compacted layer did not appear to affect the rooting depth.
- **Rills/gullies, Bare Ground, Headcuts:** No rills, bare ground or headcuts were observed within the meadow, and all rated as Level 4.

Vegetation Rating:

Round Mountain

Stringer is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. *Carex* species were the most commonly hit species. *Muhlenbergia richardsonis*, *Juncus balticus*, and *Aster* spp. were also present in sizable amounts. Hummocks were present. (Assessed Sept. 2010)

PFC Rating: There was no perennial channel through this meadow.



Photo above: Overview of Round Mountain Stringer Meadow.



Photo above: The ephemeral channel through the main part of Round Mountain Stringer meadow.



Photo above: Ephemeral pool within Round Mt. Stringer meadow. This meadow typically has abundant forage.

Monache Meadows: Soda Creek Meadow

Soda Creek Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	Fully Functional	PFC

Meadow Description: Soda Creek Meadow is located at the eastern base of Monache Mountain, with the creek lying on the southern side of the mountain. It is approximately 206 acres in size and is classified as Wet Meadow Basins (MU1), Wet Meadow Drainageways (MU2), Riparian Stringers (MU4) Alluvial Fans/Rothrock Sage (MU7) and Moderate Alkaline Terraces/Haplocryolls (MU15). The Amendment 6 assessment was taken at the bottom portion of the meadow in ecological unit MU15. At the time, this area of the meadow was inundated with water. The PFC rating was assessed through the MU2 classification type, located in the narrow meadow upstream of the private in-holding.

Watershed Rating: The overall rating for this meadow is Fully Functional, with all parameters rating as Level 4, Fully Functional, except for Organic Layer and Compaction, which rated as Level 3. This meadow is grazed typically in the middle of the summer season (August), and may be occupied by cattle in the fall during round-up. Utilization is usually measured at lower than 25%.

- **Organic Layer:** The sod layer averaged 2 inches thick but was up to 3.5 inches thick in the moister areas. Some small inclusions with less than ½ inch of sod were scattered throughout less than 5% of the meadow.
- **Hummocks:** Very few hummocks were observed in localized spots, but they do not appear to be increasing.
- **Rills/gullies:** None were observed.
- **Compaction:** In areas with little sod or bare ground, compaction layer was observed at the surface for about 2 inches. In dry areas, compacted layer is about 1 inch thick below sod layer. There was little evidence of compaction in wet areas. The soil is mostly a sod layer with a thin layer of inorganic layer over sand substrate. In dry areas, compaction affected rooting depth, but in sod areas, roots penetrated through the compacted layer.
- **Bare Ground:** This key area is a very vigorous meadow that is heavily vegetated. About 5% of the meadow exhibits compacted, bare areas with no sod development. Bare areas exist in the southern end of the meadow. This most likely is due to the alkali influence of the area.
- **Headcuts:** No headcuts were observed throughout the meadow, but there is a large headcut within an enclosure that has well vegetated banks of *Carex utriculata* and *Carex nebrascensis* that is migrating and can impact meadow if it moves past the fenceline. This headcut was observed during 2011 with no further migration.

Vegetation Rating: Lower Soda Creek Meadow is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. *Carex nebrascensis*, *C. vesicaria*, and *Juncus balticus* comprised the majority of the vegetation hits. (Assessed Sept. 2010)

PFC Rating: Soda Creek was rated at PFC because of the heavily vegetated streambanks, variety of species present, erosion and deposition action, and hydrologic functionality. Although there were multiple structures (sills) constructed within the channel, they are functioning and

stable and have played a large role in the restoration of this section of channel. Large brown trout (~20 inches) were observed within this narrow and deep channel.



Photo above: Overview of Lower Soda Meadow.



Photo above: This photo shows the headcut that has migrated past the treatment and is moving out of the fenced area in Lower Soda Meadow.

Red Rock Meadow

Red Rock Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent (1 st tier)	At Risk to Fully Functional	PFC

Meadow Description: The Red Rock Meadow Complex is a scattered and divided meadow of Hanging Meadow Types (MU3) and Riparian Stringers (MU4). The Amendment 6 assessment was focused on one of the larger wet meadow types in the MU3-type. The acreage for the combined meadows totals about 43 acres. This meadow exhibits perched spring channels that are fairly common in this part of the Kern Plateau.

Watershed Rating: This meadow rated as Fully Functional or At Risk, depending on the rating chosen for Headcuts – Level 2 or 3. All other parameters rated at Level 4.

- **Organic Layer:** The organic layer was measured from 2.5 to 5 inches throughout the meadow.
- **Hummocks:** Less than 5% of the meadow area exhibited scattered, small clusters of hummocks, but no extensive areas were covered with this feature.
- **Rills/gullies:** Spring channels throughout the meadow are heavily vegetated, but no rills or gullies were observed.
- **Compaction:** No compaction was observed. Deep rooted vegetation was observed throughout the meadow.
- **Bare Ground:** Bare ground observed was estimated to be less than 5% of the meadow, and very little rodent activity also was observed.
- **Headcuts:** One large treated headcut that had roughly a 5-foot drop was observed within the main channel. Some recent migration of this headcut was located at the far side of the meadow. Some small, active headcuts were observed within the small spring channels in the main meadow area. Other channels were well-vegetated and stable.

Vegetation Rating: Red Rock is a wet meadow that rated at excellent condition and fell in the highest tier of Amendment 6. This meadow was dominated by late-seral *Carex* species.

Dodecatheon alpinum and *Aster alpigenus* were also visually common. (Assessed July 2011)

PFC Rating: The reach section below the Amendment-6 assessed meadow was rated at PFC, but did not include the section of channel where the treated headcut occurs. Banks were well-vegetated with a variety of species and age-classes, had relative features to dissipate energy and did not show any signs of bank collapse or channel migration during the 2011 run-off events.



Photo above: Spring channel within Redrock Meadow, which is perched above main meadow elevation.



Photo above: Overview of Redrock Meadow assessment area.



Photo above: The channel displayed sinuosity in this steep portion of Redrock Meadow.



Photo above: Adequate sinuosity and a variety of vigorous, high seral plant species and vertical stability puts this channel through Redrock Meadow at PFC.



Photo above: View of the channel just below the main trail crossing in lower Redrock Meadow. At this time in September, it was still at or over bankfull.

Meadow			
Meadow Type	Vegetation Condition	Watershed Rating	PFC Rating
Wet Meadow	Excellent		No channel

Meadow Description:
Watershed Rating:
Vegetation Rating:
PFC Rating:

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